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AMSAT NEWS SERVICE
ANS-001

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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ANS-001 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 001.01
>From AMSAT HQ SILVER SPRING, MD.
January, 1, 2012
To All RADIO AMATEURS
BID: $ANS-001.01

A Note About the New AMSAT News Service Format

The ANS news bulletins have traditionally been sent out using a packet header format on each item. In the year 2012 we are no longer sure how many VHF-UHF PBBS systems remain active that are re-distributing ANS bulletins via RF-based AX.25. Perhaps the packet header is no longer a requirement for each individual news item.

ANS plans to continue to distribute the bulletins in our traditional plain-ascii format so this is not changing. Previous inquiries have indicated a very strong preference for the plain-ascii format.

In this bulletin you will observe we have preserved the e-mail style of plain ascii text, 70 character lines. We preserved packet compatibility by placing a single packet-header at the top of the news and a single /EX at the end of the entire news. If this still goes out by packet SB SAT @ AMSAT $ANS-001.01 should still be able to be processed, received, and read.

Happy New Year from the AMSAT News Service crew!

ARISSat-1 altitude is rapidly decreasing

On Tuesday, 27 Dec 2011, ARISSat-1 was losing about 4.1 km (~2.5 miles) a day in altitude, by Friday 30 Dec 2011 the decay was 5.9 km (3.6 miles)
per day. This rate will continue to increase over the next days and ulti-
mately result in the satellite burning up in the atmosphere.

Telemetry reports haven't shown a large increase in temperatures yet, please collect and report these values during each illumination period. There have been a number of people that continue to update their calcu-
lations on when the satellite will re-enter. Dates range from 30 Dec to 16 Jan.

The fall rate dh/dt is increasing dramatically. Be sure to do daily updates of the ARISSat-1/RadioSkaf-B Keps from Celestrak.com. The ARISSat-1 orbit changes daily while the satellite continues to lose altitude.

Roland, PY4ZBZ from Brazil has updated graphs of height and fall rate on his Web site: http://www.qsl.net/py4zbz/arissat.htm#r

Now that ARISSat-1 is in its last days, the Chicken Little Contest web site has been updated to include the individual submissions in each category nearest its likely reentry time. See:

http://www.amsat.org/amsat-new/ARISSat/ARISSatContest

You can see how you are doing compared to the competition! It appears that the submissions are sufficiently spread out that we will be able to determine unique winners in each category. However, you can help with this by keeping the telemetry submissions coming. Space Command does not maintain precise Tracking and Impact Prediction (TIP) for minor spacecraft.

A small satellite is considered to have reentered when three consec-
utive tracking stations fail to acquire it, which leaves a consider-
able window.

While the formal last telemetry contest is only open to submission through the telemetry programs, keep listening and note the time and place where you hear it last. After it has been confirmed to have reentered, the last reception including voice and CW, may help narrow that window unless transmissions cease significantly before reentry.

[ANS thanks Gould, WA4SXM and Alan, WA4SCA for this information]

OSCAR-11 REPORT 29 December 2011

This report covers the period from 01 September to 28 December 2011. The satellite has continued to operate in a very predictable way since the last report, and no changes have been observed. During this time the satellite has been heard reliably during its ten-day transmission periods. Excellent signals have been reported from stations located

around the world, and good copy obtained from decoded telemetry frames.

The easiest way to check whether OSCAR-11 is operational is to look at the General Satellite Status website http://oscar.dcarr.org/index.php. You can also calculate the operating schedule from the last switch-off time, which was 28 December 2011 at 15:00 UTC (approx), using 10.35 days off followed by 10.35 days on.

Reception reports have been received from Gustavo LW2DTZ, Bob KI0G, Rolf HB9TSO and Francesco IT9JRU. Many thanks to all and those who posted to the status website.

The satellite is currently in eclipse during all evening passes over the UK, resulting in lower signal strengths at these times. Owing to the gradual precession of the orbit, the season for eclipses of the evening passes is longer this year compared with the winter last year.

The on-board clock continues to gain, 28 seconds during the current reporting period, and 112 seconds since regular transmissions were resumed at the end of August 2010. There is however a large accumulated error of 308.54303 days slow. This was caused mainly by the clock stopping during eclipses, when there was also an unknown drain on the power supply. The units of the least significant digit correspond approximately to seconds (0.86 seconds actually).

The VHF beacon frequency is 145.826 MHz. AFSK FM ASCII Telemetry. The satellite is operating in the default mode, with a cycle time of 20.7 days. 10.35 days on followed by
10.35 days off.

At the present time, while OSCAR-11 is operating in a predictable way, I no longer need direct reports or files by e-mail. However, could all listeners continue to enter their reports on the general satellite status website. This is a very convenient and easy to use facility, which shows the current status of all the amateur satellites, and is of use to everyone. Reports around the expected times of switch-on and switch-off are of special interest, especially for times 12:00 - 18:00 and 22:00 - 07:00 UTC, when the satellite is out-of-range in the UK. The URL is http://oscar.dcarr.org/index.php

A longer version of this report report is available on my website, and new listeners to OSCAR-11 should read this for further information. The URL is www.g3cwv.co.uk/oscar11.htm . This page contains a links to the longer report, a short audio clip to help you identify the satellite and a file of the last telemetry received. The website also contains an archive of news & telemetry data which is updated from time to time, and details about using a soundcard or hardware demodulators for data capture. There is also software for capturing data, and decoding ASCII telemetry.

If you place this bulletin on a terrestrial packet network, please use the bulletin identifier $BID:U2RPT157.CWV, to prevent duplication.

[ANS thanks Clive G3CWV for the above information]

Highlights of ARISS International Delegates Annual Meeting

The ARISS International Delegates Annual Meeting was held at the NASA Johnson Space Center in Houston, TX on October 28-29, 2011.

The ARISS Team meeting was opened with a welcome by Susan White, lead

of Johnson Space Center Education Office. The main objective of the NASA Education Office is to promote STEM (science, techno- logy, engineering, and math) activities. Susan said NASA greatly appreciates the efforts the ARISS team puts into promoting STEM, and applauds the fine educational outcomes garnered by ARISS. She said NASA is focusing heavily on two new things for Fiscal Year 2012 (October 1, 2011 to September 30, 2012):

+ Continue to make the very best use of its resources, including resource help from outside of NASA -- such as from ARISS.

+ The other focus is professional development promoting the STEM initiative.

ARISS Delegates submitted their status report for their region prior to the meeting. These have been posted at: http://www.amsat.org/amsat/ariss/Meetings/2011_Houston/Presentations/

Highlights of the presentations include:

+ ARISS Education. ARISS will continue with its support of the School Contacts.

+ Summary of the ARISSat-1/KEDR mission.

+ Hardware proposal regarding the installation of a new Kenwood D710 radio in the Columbus module.

+ Hardware proposal for new power supply for ISS-Ham operations in the Columbus module.

+ Ongoing work with ARISS-Europe, AMSAT-Italy, ESA, and Kayser-Italia for implementation of the HAMTV - Digital ATV with S-band downlink from the Columbus Module. S-band ATV equipment would be required at schools for use in video ARISS contacts.

More details about the meeting along with photographs of the meeting are included in the next AMSAT Journal which will be mailed to all AMSAT members.

[ANS thanks ARISS for the above information]

NO-44 PCSAT Recovery Attempt in Progress

NO-44 PCSAT-1 has remained semi-operational in sunlight since its battery had failed years ago. The satellite shuts down due to low power from the solar cells in eclipse. On many passes a poor sun angle provides only enough power for it to digipeat only 1 or 2 packets via 145.825 MHz AX.25. A few times a year PCSAT's orbit has it in 24-hour sunlight for a few days. One of these full-sun periods is occuring now.

Bob Bruninga, WB4APR, control station for the US Naval Academy Satellite Lab, the "owners" of PCSAT, is attempting to recover PCSAT by uplinking commands. Due to the poor sun angle on the solar cells just one single packet from a user other than the control station during a pass will easily kill that pass's chance of recovery.

Bob says they only get a few packet chances per pass for recovery. He needs for the stations with beacons on 145.825 MHz to please turn off your beacon - it competes with the slim power budget that the control

station is attempting to utilize.

This past week, European control station Mike Rupprecht, DK3WN managed to recover PCSAT for a short period before low voltage reset the satellite again.

Please do not attempt to digipeat via PCSAT on 145.825 MHz while the satellite recovery effort is underway. Bob says it will take the right sun angle, at the right time to ensure success.

It is OK for ground stations to access the ARISS packet system on the ISS, also on 145.825 MHz when PCSAT is not in range.

[ANS thanks Bob Bruninga, WB4APR for the above information]

FO-29 Recovery and Testing Continues

The FO-29 Command Team reported that their December 23 test operation was successful. They were able to gain control of the satellite and copy its telemetry beacon while it was over Japan.

FO-29 stopped operating when it entered eclipse. An example of the telemetry copied during testing has been posted as a sound file at: http://www.ne.jp/asahi/m-arai/gkz/sound/FO29-111223142200-142544z.mp3

A tentative FO-29 operation schedule for early January, 2012 is:

Jan 1 04:43 UTC
Jan 3 04:37 UTC
Jan 4 05:28 UTC

The transponder is expected to operate until eclipse. Stations in East Asia, Australia/New Zealand and southern South America will be able to attempt to use FO-29.

[ANS thanks Mineo Wakita, JE9PEL and Masa Arai, JN1GKZ for the above information]

University of Rome UniCubeSat GG Qualified for Vega Maiden Flight

The AMSAT-UK web carried the news that a seventh University Cubesat has passed its Final Acceptance Review at ESA and has been added to the manifest of the maiden Vega Launch.

The January 2012 inaugural launch of the ESA Vega rocket from the ESA spaceport at Kourou in the Caribbean will carry the amateur radio microsatellite ALMASat-1 and now CubeSats. The orbit is planned for 1450 by 300 km at an inclination of 69.5 degrees.

There were slots for up to nine CubeSats on the Vega launch. This week it was announced that UniCubeSat GG (Universit&#65533; di Roma &#65533;La Sapienza&#65533;, Italy) will be the seventh cubesat aboard this launch.

The UNICubeSat mission goal is the in situ measurement of atmospheric density, which is made possible by the low perigee altitude of the VEGA Maiden flight orbit. All of the UNICubeSat key components, such as solar arrays, batteries, communications and on board

data handling are developed on the heritage of the four UNISAT satellites, designed, built and launched by the GAUSS team at the Scuola di Ingegneria Aerospaziale in the last decade. The SPIV ground station, located in Roma, will be the main ground station for the UNICubeSat mission.

The previously announced six cubesats on the maiden Vega Launch included:

+ Xatcobeo (collaboration of the University of Vigo and INTA, Spain)
+ Robusta (University of Montpellier 2, France)
+ E-St@r (Politecnico di Torino, Italy)
+ Goliat (University of Bucharest, Romania)
+ PW-Sat (Warsaw University of Technology, Poland)
+ MaSat-1 (Budapest University of Technology & Economics, Hungary)

As well as the CubeSats Vega will also carry the Amateur Radio micro-satellite ALMASat-1.

The full story can be read on-line: http://tinyurl.com/csgkqwz (www.uk.amsat.org)

ESA CubeSats delivered for first Vega flight news web page:
http://www.esa.int/esaMI/Education/SEM3L0WWVUG_0.html

ESA Education - CubeSats
http://www.esa.int/esaMI/Education/SEM3N03MDAF_0.html

A picture of ALMASat-1 and the six CubeSats is posted at AMSAT-UK:
http://tinyurl.com/c8o73zw (uk.amsat.org)

The IARU amateur satellite frequency coordination pages hosted by AMAT-UK list the frequencies of the amateur radio satellites:
http://www.amsat.org.uk/iaru/

Mineo Wakita, JE9PEL provides complete coverage of the Vega launch on his 'ESA CubeSats Update' web pages. You'll find an overview of each of the satellite missions, frequencies, modulation/protocols, and links to the developers home web pages posted at:
http://www.ne.jp/asahi/hamradio/je9pel/esa9cubf.htm

[ANS thanks ESA, AMSAT-UK, for the above information]

The DIY Magic of Amateur Radio released

A new promotional video has been released to attract Hackers, Makers and Innovators to ham radio.

The video features well known hacker and maker Diana Eng KC2UHB along with Ham Nation's Bob Heil K9EID and ISS Astronaut Doug Wheelock KF5BOC. It follows some of the innovative, imaginative and fun ways "hams" use radio technology in new and creative ways and points out that amateur radio clubs are similar to hacker groups.

Watch The DIY Magic of Amateur Radio in HD
"http://www.youtube.com/embed/vlDwVhx7miQ?feature&#65533;ayer_embedded"
frameborder&#65533;" allowfullscreen></iframe>

[ANS thanks ARRL for the above information]

ARISS Status

1. Upcoming School Contact

An Amateur Radio on the International Space Station (ARISS) contact has been scheduled for the Historical Museum of Gdansk in Gdansk, Poland on Saturday, December 31 at 14:04 UTC. This year the museum celebrates the 400th anniversary of the birth of astronomer Johannes Hevelius. On display are exhibitions which represent Hevelius' achievements and research instruments. Other presentations showcase modern space exploration. Students from several Gdansk schools will participate in the ARISS contact.

2. Rome Contact Successful

On Monday, December 19, students from Teodoro Mommsen Middle School in Rome, Italy spoke with Astronaut Dan Burbank, KC5ZSX via an Amateur Radio on the International Space Station (ARISS) contact. Telebridge station LU1CGB in Buenos Aires, Argentina handled the radio link. Nearly 80 students attended the event and listened as Burbank fielded sixteen questions about living in a micro-gravity environment. The school, located in the "Appio-Latino" district in the south of Rome, has an enrollment of 800 students, ages 11 - 13. To view contact video, see: http://www.livestream.com/amsat_italia/video?clipId=a_47be5d99-fe7a-4b
1a-967c-e58fabbb97aa

3. ARISS Sets New Events Record

The ARISS contact held with Kobe, Japan was number 121 for 2011 and equals the most number of events done in a calendar year (set in 2009). The Teodoro Mommsen Middle School contact held on Monday, December 19 was number 122 and set a new record for the number of events conducted in a single calendar year.

4. ARISS International Teleconference Held

The monthly ARISS International Team teleconference was held on Tuesday, December 20. It was announced that Rosalie White will step down as the U.S. representative and chairman of the ARISS-International Educational Outreach and School Selection Committee. She will be replaced by Frank Bauer. The ARISS status on filing with the ITU (International Telecommunication Union) was given and an update on the HamTV project, which may include a video beacon, was also provided. Minutes have been posted. See: http://ariss.rac.ca/arisstel2011-12-20.htm

5. Amateur Radio Newsline on ARISS

Amateur Radio Newsline posted a few items related to ARISS in its December 23 report #1793 under the heading "Ham Radio in Space." The first story is about new crew members Don Pettit, KD5MDT, Oleg Kononenko, RN3DX and Andre Kuipers, PI9ISS flying to the ISS this past week. The second story gives a new prediction of when ARISSat will re-enter Earth's atmosphere. "Three Astro-Hams Headed to the ISS" and "ARISSat-1 Mission May End December 31" may be viewed at: ftp://ftp.arnewsline.org/quincy/News/news.txt

6. ARRL QST Covers ARISS News

The American Radio Relay League (ARRL) January 2012 QST coverage of ARISS items are:

"It Seems to Us," written each month by CEO Dave Sumner, K1ZZ, is titled this month "The Year Ahead" and covers what's expected for 2012. Dave lists World Amateur Radio Day on April 18, 2012, when this year's theme will be "Amateur Radio Satellites: Celebrating 50 Years in Space." Dave says we'll celebrate the launch of the first OSCAR satellite that "was followed by an even greater thrill in 1983 when radio amateurs the world over spoke with Owen Garriott, W5LFL, as he orbited the Earth aboard STS-9."

The "Media Hits" column mentions the ARISS school, Holy Family Catholic School, in Grand Junction, CO. A good newspaper story ran in the Grand Junction Sentinel when reporters attended a demonstration put on by students of on-the-air amateur radio moonbounce operations.

The "In Brief" column listed the crew members, including Dan Burbank, KC5ZSX, who had joined the crew on the ISS.

[ANS thanks Carol, KB3LKI, for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

It has been another year of information and news gathering for us at ANS. Please keep the timely information you provide coming on a regular basis. It is with great hope for the upcoming year in AMSAT that we at ANS, Joanne, Lee & Dee, wish you all a healthy and safe New Year.

73,
This week's ANS Editor,
Dee Interdonato, NB2F